

The Art of Bonsai

By Eugene Howell

Every once in a while you see a bonsai on display that, in addition to the perfect branch placement and the beautifully formed leaf pads, there is something about it that makes it especially attractive. After studying it for awhile, and knowing something about that particular species, one realizes that the leaves are in excellent proportion to the size of the bonsai and this is what makes it really special.

Frequently a species of tree or shrub is used for bonsai when, in fact, the leaves are a little too large for the eventual size of the tree. The Japanese, having created and worked with bonsai for several hundred years, have long learned how to use nature to partially correct this incompatibility in size between leaves and tree. They employ leaf reduction techniques. There are few species that cannot respond to leaf reduction if the bonsai enthusiast knows something about botany and how plants respond to certain events. If you know enough about why plants do what they do and that you can successfully accomplish leaf reduction, you are certainly equal in caliber to any intermediate bonsai hobbyist and probably better than some so-called “advanced” artists.

To insure that you fully understand the concept of leaf reduction, it will be essential that we review some information we have covered in previous articles. Let’s start with the botany part of the process.

You will recall (I hope) that the cambium layer in all plants consists of meristem cells and that these cells are the only ones in the plant that can divide to form additional cells and can also divide to form cells of any of several types. What this means is that meristem cells can form cells that grow into roots, cells that grow into leaves, ones that form branches, and ones that form phloem and xylem tissue.

Hopefully you will also recall (if you don’t remember any of this then go back to our earlier articles and study-up) that the meristem cells at the tip of each branch are dominant. This means that they produce a chemical to keep bud-cells further down the branch in a dormant state. These dormant buds are most frequently at the base of each leaf petiole (stem).

From the article on developing ramification, you will recall that when these dominant cells are removed (the branch tip is pinched off), these dormant buds will kick-in to develop either new leaves or additional (smaller) branches.

Being pretty intelligent (otherwise you wouldn’t have bonsai as a hobby) you can think about deciduous trees, which lose their leaves in winter and grow new ones in spring, and understand where the new spring leaves come from. The tree, having lost all its leaves in winter, is genetically programmed to replace them. So the cambium layer kicks-in and causes all the dormant buds at the base of where the old leaf stems used to be, to come out of dormancy and grow new leaves. The tree, or shrub, has had the full growing season to store food for the winter so there is plenty of food for these new spring-leaves to grow to the full size that nature programmed them to be.

The interesting question that creeps into one’s mind at this point is “what happens if the tree loses all its leaves before the tree can store food for the winter?” In this case the dormant buds kick into action right away and new leaves are formed, but the new leaves are somewhat smaller than the leaves being replaced.

Ah-ha, leaf reduction has taken place!!

(To be continued in the article next month)